TITLE OF THE INVENTION

METHOD AND APPARATUS FOR CREATING INTERACTIVE VIRTUAL TOURS

ABSTRACT

The present invention discloses a method and apparatus for creating interactive virtual tours. In one embodiment, panoramic imaging systems characterized by a 360-degree lateral field of view and a vertical field of view that is usually less than 180 degrees are utilized and polynomial-based interpolation algorithms are used to correct distortions in the input panoramic images, video or rendered scenes, permitting the use of an arbitrary panoramic imaging system characterized by the ability to generate a seamless 360-degree panoramic view of the imaged scene in each single image frame. The input panoramic images, video or rendered scenes are used to create spherical environment maps that are packaged into completely immersive (giving the impression of being there) virtual tours that are rendered on a display device by a viewing engine that corrects perspective distortions in the spherical environment maps contained in the virtual tour packages and permits a plurality of viewers to view any portion of any of the panoramic scenes in the virtual tour package in a manner that is free from distortions. The present invention also discloses a control engine for representing the individual panoramic scenes contained in the virtual tour package in multi-dimensional space and/or time and for transmitting control signals to the viewing engine that cause the viewing engine to render any particular panoramic scene selected by the viewer and any view window on the selected panoramic scene desired by the viewer. Furthermore, the control engine communicates bi-directionally with the viewing engine and provides a means of indicating which particular panoramic scene is currently viewed by the viewing engine as well as a means of indicating what portion of the selected panoramic scene is currently displayed by the viewing engine.